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Air Quality Management District
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Mr. Michael Miguel, Manager
Product Support Section
California Air Resources Board
P.O. Box 2815
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Dear Mr. Miguel:

Comments Regarding the
Draft "Evaluation of Port Trucks and Possible Mitigation Strategies" Report

The South Coast Air Quality Management District (AQMD) staff is providing comments on the draft California Air Resources Board (CARB) staff report titled, "Evaluation of Port Trucks and Possible Mitigation Strategies" dated April 2006. The AQMD staff's comments focus on several key areas of the draft report: 3) consideration of the recent Coordinated Research Council (CRC) studies related to in-use emissions testing of diesel trucks; 2) the proposed strategies to reduce port-related truck emissions; 3) consideration of additional mitigation scenarios; and 4) update of assumptions used to developed the strategies.

**Recent In-Use Emissions Testing of Heavy-Duty Diesel Trucks**
Recently, the AQMD and CARB staff held a joint meeting to discuss the results of the CRC studies on in-use emissions testing of on-road diesel trucks. One of the conclusions of the study is that late 1990s model year diesel trucks (1998 and newer to 2002) have similar (and possibly, higher) nitrogen oxides emissions compared to early to mid-1990s diesel trucks. It does not appear that any real-world oxides of nitrogen (NOx) emission reductions occurred during the 1990s despite the promulgation of tighter NOx emission standards during this time period. In addition, due to limited number of testing of 2000 to 2003 heavy-duty trucks, it is not clear at this time whether these trucks are cleaner than pre-1990 trucks. In light of the recent information, the strategies proposed in the draft report should be evaluated further. Until further in-use emissions testing are performed, CARB needs to consider, at a minimum, the likelihood that replacement of existing trucks should only be with post-2003 trucks.

**Proposed Mitigation Strategies**
Given the severity of the air quality in the South Coast Air Basin and the need to attain federal fine particulate standards by 2014 and the 8-hour ozone standard by 2021, the AQMD staff be-

lieves that the most aggressive emission reduction strategies should be pursued. However, the AQMD staff recognizes the economic costs associated with achieving the greatest air quality benefits as early as possible. While the draft report focuses on port trucks and the replacement of the existing trucks, the AQMD staff believes that other operational activities may lead to a reduction in the number of trucks operating at the ports. As such, the proposed mitigation strategies should be evaluated in an overall air quality management planning effort to determine what levels of penetration would be needed to attain air quality standards.

The draft report proposes three mitigation strategies, of which the two-phase strategy (Strategy 3) is the CARB staff's recommended strategy. The report also assumes that the existing trucks would continue to serve the ports along with additional new trucks to accommodate the projected growth. The strategies are primarily based on financial incentives to encourage or promote the replacement of older diesel trucks and retrofit of newer diesel trucks with diesel particulate filters (DPFs) and/or DPF/NOx catalysts. The report provides a description of the three proposed strategies with Strategy 1 being the least costly to implement and with minimal NOx reductions and Strategy 2 being the most costly, but with the largest reductions in NOx. Strategy 3 is a two-phase approach with early replacement of older truck followed by a second round of truck replacements. This strategy is the CARB staff's recommendation since this scenario provides NOx and particularte emission reduction benefits at a cost in-between Strategies 1 and 2. However, if the cost and availability issues mentioned for Strategy 2 are resolved, Strategy 2 will provide the highest NOx reduction in 2010.

An additional strategy is also proposed for new trucks entering the ports (in 2007 and later) which would have to meet 2003 (or newer) emission standards and be equipped with diesel particulate filters (DPFs). However, there are no dedicated truck fleet serving the ports, and therefore, proposing strategies for "existing" port trucks which are assumed to continue to serve the ports does not seem to be the best approach and may not result in the anticipated emission reduction benefits. Furthermore, the apparent voluntary nature of these strategies and the level of financial incentives provided may not guarantee the necessary level of participation from truck owners. The report acknowledges that the ability and willingness of the port truck owners to participate in the desired retrofit or modernization efforts is one of the main issues with these strategies. Although this fact should be considered in designing the final strategies, without an enforceable mechanism or a port entry requirement for all trucks, there would be a significant amount of uncertainty in the level and timing of the emission reductions from port trucks. Therefore, an alternative approach would be to establish specific requirements for all trucks which are serving the ports.

**Additional Mitigation Strategies**

The AQMD staff believes that there are other mitigation strategies that should be considered in addition to the three proposed strategies. One such strategy would be a combination of Strategy 1 with the Phase 2 portion of Strategy 3. Such a combination would reduce NOx and achieve the PM reductions provided in Strategy 1. The cost of this combined scenario ($380 million) is less than Strategies 2 and 3, and would achieve a significant portion of the NOx reductions provided in Strategy 3.

Another alternative strategy could be based on establishing progressively stringent requirements for all trucks entering the ports (not just for new trucks). Under this approach, trucks which are not meeting the specific port entry requirements for a given year would not be allowed to serve the ports for that year. The approach would be based on similar strategies proposed in Strategies 2 and 3 but would be implemented through an enforceable program supplemented with an incentive-based program. For instance, pre-1991 trucks would be restricted from entering ports as early as possible (i.e., in 2008) to provide immediate reduction benefits. This restriction would increase the willingness of truck operators to participate in the incentive programs. However, the requirements for each year should be carefully developed with the objective of maximizing the early PM and NOx reductions and accelerating the introduction of cleanest trucks while considering cost and truck availability issues as well as potential impacts on truckers and terminal operators. These requirements could then be compared against the projected baseline emissions to determine the corresponding emission reduction benefits in future years.

In order to ensure the effective implementation of such strategy, a Truck Certification Program should also be developed by CARB for implementation through a third party which would certify trucks for entry into ports based on the requirements in effect for each year. For instance, a 2003-2006 model year truck must be equipped with a DPF in order to be certified for port entry in 2010. Special labels should also be considered for certified trucks for facilitating their identification by terminal operators as certified trucks. Terminal operators and/or port authorities would have the responsibility of implementing this strategy. Financial incentives from funding sources such as container fees would still be provided to truckers to "certify" their existing or replaced trucks for port entry. The truck certification program should also include a ranking system in order to promote the introduction of cleanest trucks and those exceeding the yearly requirements. For instance, trucks which are meeting the 2007 or 2010 emission standards earlier than required could be given the highest priority for port entry.

The following proposed strategy illustrates the types of requirements which could be specified for port trucks:

| Year | Requirements for Port Trucks |
|---|---|
| 2008 | No Pre-1991 MY Trucks Allowed |
| 2009 | No Pre-1994 MY Trucks Allowed |
| 2010 | 2007 to 2010 MY Trucks<br>1998 to 2006 MY Trucks with DPFs<br>1998 to 2002 MY Trucks with NOx Catalysts |
| 2015 | 2007-2010 MY Trucks<br>2003 to 2006 MY Trucks with New DPFs |
| 2020 | 2007-2010 MY Trucks |

Lastly, the draft report summarily dismissed greater penetration of new diesel trucks meeting future emissions standards or alternative fuel powered trucks as mitigation strategies given the

higher capital cost of a new truck purchase. However, the AQMD staff believes that these scenarios should be included in the discussion since larger fleets may be considering providing services given the growth projected to occur over the next 15 years. As mentioned previously, the various strategies should be evaluated in light of other control measures being developed for the 2007 AQMP.

**On-Road Trucks versus Rail**

In 2005, 75% of the inbound containers (6 million) at the Ports of Los Angeles and Long Beach were transported by an estimated 10,000 trucks while the remaining 25% of containers (2 million) were transported by rail (i.e., on-dock rail or near-dock rail). By 2020, the container throughput is expected to increase to about 20 million for both ports. Of the 21,000 trucks estimated to serve the three California ports, it is estimated that about 16,000 trucks would operate at the Ports of Los Angeles and Long Beach. Assuming the same average number of containers per truck in 2005 and 2020 (i.e., 600 = 6,000,000 containers/10,000 trucks), over 9 million containers will be transported by trucks at the Ports of Los Angeles and Long Beach in 2020. This means that the remaining 10.5 million containers would be transported by rail representing an increase in rail share of over 50% in 2020 compared to 25% in 2005.

By 2020, under the proposed strategies (or alternative strategy), port trucks would meet some of the most stringent emission limits ever and achieve significant reductions despite the growth in truck activities. In contrast, however, rail emissions will increase disproportionately because of the projected growth in trail transportation of containers and lack of comparable stringent regulations and strategies for diesel-powered locomotives. The existing federal locomotive regulations combined with the Railroad MOU are significantly less stringent than the standards already in effect for the on-road heavy duty diesel trucks. With the additional strategies proposed for existing trucks, there will be even a larger disparity between trucks and rail emissions in the future.

Therefore, in order to address this equity issue between trucks and locomotive emissions, specific strategies must also be considered for achieving substantial emission reductions from existing locomotives equivalent to those being considered for trucks within the same timeframe.

**Need to Update Assumptions**

The staff report needs to take into consideration the latest information regarding truck operations being developed by the Port of Los Angeles (POLA). POLA is in the process of preparing a five-year Clean Air Plan, which includes updates to the projection of port growth provided in the No Net Increase report and the 2001 baseline emissions. Part of this work includes an updated inventory of port truck activities. The 2002 Starcrest survey of trucks visiting three terminals at POLA and Port of Long Beach is used as the basis for developing the age profile for port trucks and the ARB's analysis. The sampled population for this survey is mentioned to be 7,156 trucks, representing about 70% of the entire fleet of 10,000. However, it is not clear whether this number represents the total number of unique trucks visiting the ports or the total number of truck trips. If it is the number of truck trips, the sample size would only represent about 35% of fleet (out of at least 20,000 truck trips) and it would not necessarily be representative of the entire fleet. If the number represents the number of unique trucks, it seems high for only three terminals. Having the most recent information will also provide consistency with the on-road emis-

sions inventories being developed for the 2007 South Coast Air Quality Management Plan (AQMP).

Additionally, some of the assumptions are based on older Carl Moyer guidelines. For instance, the current Carl Moyer guidelines contain a formula to calculate cost-effectiveness based on three pollutants: NOx, PM, and nonmethane hydrocarbons. In addition, the cost-effectiveness criterion is now $14,300/ton rather than the $13,900/ton cited in the report.

In summary, the AQMD staff believes that the current draft report needs further analysis relative to the comments provided above. In addition, additional mitigation strategies that were summarily dismissed in the current draft report should be further described and included in future analysis as part of the air quality planning process. Lastly, it is not clear how the current report would fit into the overall goods movement emissions reduction plan approved by the CARB Board if after receiving public comments, the report provides different emissions benefits compared to the approved plan.

Please feel free to call me at (909) 396-3186 if you have questions regarding our comments.

Sincerely,

Elaine Chang, DrPH
Deputy Executive Officer
Planning, Rule Development, and Area Sources

cc: Peter Greenwald, SCAQMD
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